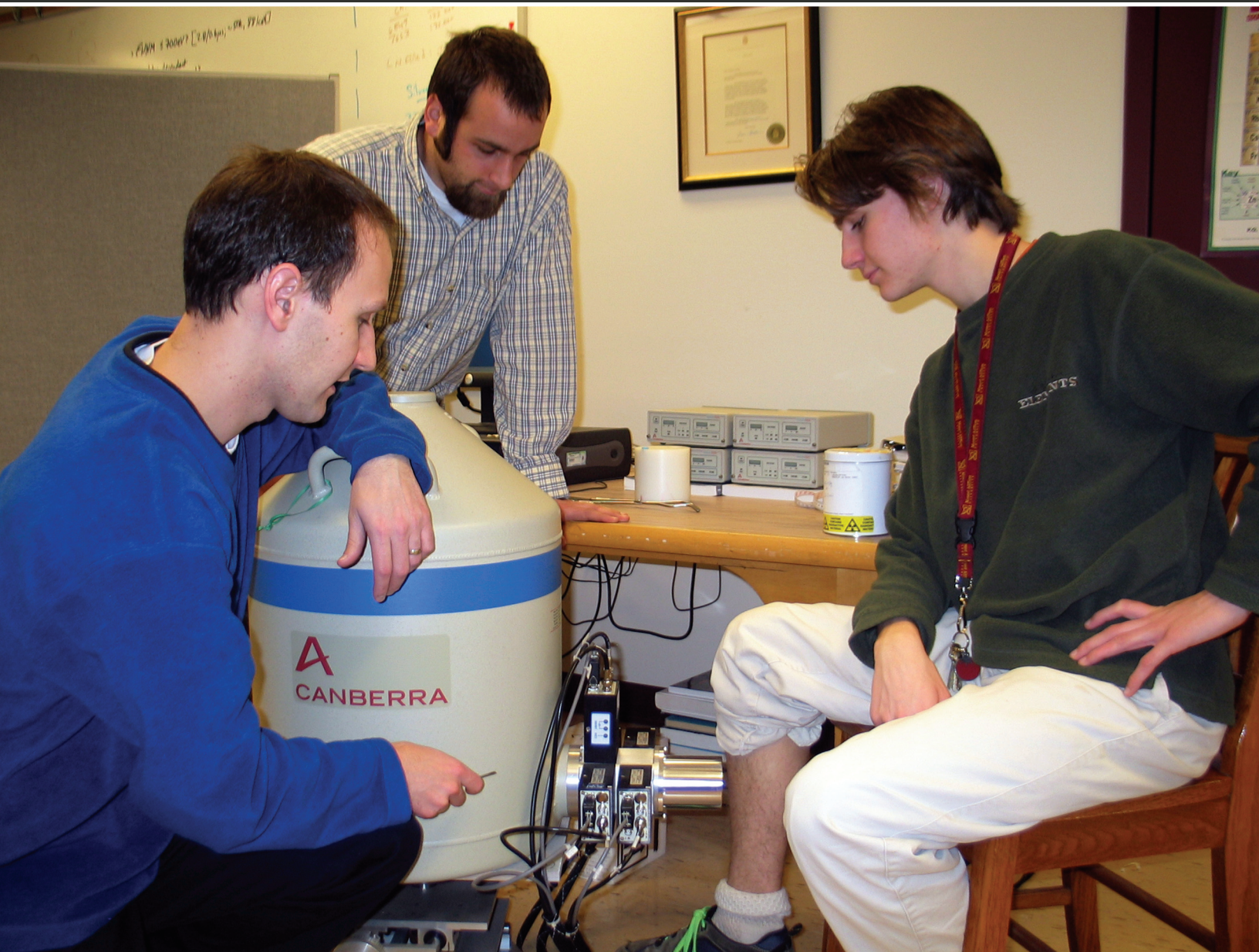


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VOLUME IV ISSUE 2 JANUARY 2006

Canadian Undergraduate Physics Journal
Journal Canadien des Étudiants en Physique *jcép*



BAD TO THE BONE

Bone lead measurement set-up at
Mount Allison University

Photo by Sue Seaborn

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VOLUME IV ISSUE 2 JANUARY 2006

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CUPJ would like to thank all of its tremendous volunteers, including its referees and regional distribution coordinators. Special thanks to Denis Rancourt and David Sean for helpful discussions on the editorial topic and to Scott Webster for use of his vehicle in the distribution of the journal.

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information

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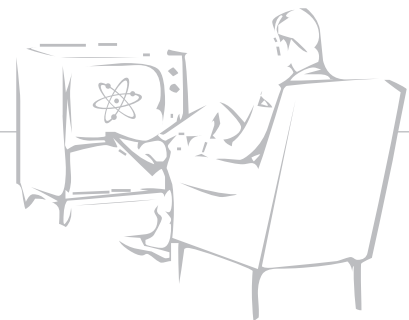
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David Fleming (left) and Andrew McDonald (middle) demonstrate a bone lead measurement set-up with Mount Allison undergraduate student Markus Baker (right). Bone lead measurement systems use a source of gamma-ray photons to induce characteristic lead x-rays, which are counted with a low-energy germanium radiation detector. The detector system is cooled by a large cryostat Dewar filled with liquid nitrogen.

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La science au service des puissances

Pourquoi la recherche est forcément politique

Read the English translation of this editorial, “It’s all about power: why scientific research is bound to be political” on CUPJ’s website at www.cupj.ca.

1800 pages: c’est la quantité d’information amassée par le FBI américain sur les «activités subversives» d’Albert Einstein. C’est à partir de ce dossier, obtenu grâce au *Freedom of Information Act* [Loi sur l’accès à l’information], que le journaliste scientifique Fred Jerome a pu écrire son livre *The Einstein File*.

En prélude au Maccarthysme, il n’est pas étonnant que la plupart des activités subversives notées par le FBI concernent la sympathie d’Einstein envers les mouvements socialistes, bien que plusieurs seront surpris de voir que des groupes pacifistes ou luttant contre la ségrégation des Noirs américains soient qualifiés de «communistes».

Par contre, nous pouvons demander, comme le fait l’auteur, pour quelle raison l’activisme politique d’Einstein – excepté peut-être son aspect pacifiste – est encore peu connu, alors que le grand physicien est associé au stéréotype du scientifique plongé dans ses théories et détaché du reste du monde?

D’ailleurs, le succès de ce stéréotype est tel que de plus en plus de physiciens et scientifiques l’adoptent presque comme un principe. Il y a toujours une bonne raison d’ignorer la politique: c’est un sujet pas assez concret pour certains, trop irrationnel pour d’autres.

Quel est le danger de cette attitude? D’abord, elle est souvent basée sur le postulat erroné qu’il est possible d’occuper un «rôle» de scientifique dans une société, sans être affecté par les aspects politiques de cette société.

La recherche scientifique, dans les universités ou ailleurs, est financée par des intérêts gouvernementaux ou privés, souvent les deux (voir notre article en page 13). Les scientifiques sont souvent

appelés à témoigner en tant qu’analystes-experts dans les médias ou auprès des autorités publiques. Le chercheur est donc à la fois influencé et influent.

Malgré cela, aucune formation ou presque n’est donnée aux futurs physiciens sur les aspects éthiques ou politiques de leur profession. Au baccalauréat en physique de l’Université d’Ottawa, seulement une des périodes d’un cours obligatoire traitait du sujet. Le message se résumait à l’importance de soumettre son travail à la revue par les pairs et de ne pas faire de plagiat.

Puisque son objet d’étude est perçu comme loin de l’être humain, la recherche en physique ne soulève pas autant de débats publics que les sciences de la vie, et à l’exception de quelques exemples classiques (la plupart contenant le mot «nucléaire»), elle est très peu controversée. C’est peut-être pourquoi il y a un moins grand intérêt du public pour savoir à qui profite cette recherche.

Selon le Bureau of Labor Statistics américain, le gouvernement fédéral employait directement 29% des 14 000 physiciens et astronomes des États-Unis, la plupart dans le Department of Defense (DoD). Cela n’inclut pas le milieu universitaire, où le DoD investissait en l’an 2000 seulement plus de 900 millions de dollars américains (selon *Physics Today*).

Dans son livre *Disciplined Minds*, le physicien américain Jeff Schmidt donne d’ailleurs plusieurs exemples de l’écart entre la perception des professeurs subventionnés, qui voient dans leurs projets de la physique théorique pure, et celle du DoD, qui y voit des applications militaires très pratiques (voir aussi notre entrevue avec Jeff Schmidt en page 19).

(Soit dit en passant, je crois que même la recherche la plus théorique peut susciter des intérêts particuliers. Par exemple, si un astrophysicien développe une théorie, l’envoi d’une sonde spatiale pour la vérifier nécessitera des investissements de la NASA et des contrats très lucratifs pour l’industrie aéronautique privée.)

L’an dernier, l’Association canadienne des physiciens et physiciennes s’est prononcée publiquement pour avertir le gouvernement de Paul Martin des lacunes scientifiques du projet américain de bouclier antimissile (BAM), telles que décrites dans un rapport de l’American Physical Society.

Malheureusement, le débat sur les aspects scientifiques du BAM n’a été qu’effleuré par les médias canadiens et au bout du compte, le refus (officiel) du gouvernement canadien à participer (d’ailleurs) au BAM était d’abord dû à de l’opportunisme politique, non à un débat sur le fond. Peut-être que cet épisode devrait faire réaliser aux scientifiques concernés que leur opinion d’expert n’est prise en compte que lorsque cela cadre avec l’ordre du jour des décideurs.

De même, je souhaite que plus d’étudiants en physique voient l’importance de comprendre les structures politiques, afin d’avoir une vision claire des intérêts qu’ils serviront plus tard et des moyens efficaces de faire entendre leur voix, à la fois comme citoyen et comme travailleur dans une profession scientifique. J’espère que notre dossier spécial sur les liens entre physique et politique pourra contribuer à cette réflexion.

Philippe Marchand

PHILIPPE MARCHAND
RÉDACTEUR EN CHEF

interview

Thoughts from an undisciplined mind

BY SEAN KELLY

Have you ever felt disillusioned, frustrated, disgusted, helpless or confused about how university is, compared to what you thought it was supposed to be, or how you think it should be? If so, you are far from alone.

Disciplined Minds by Jeff Schmidt provides an institutional analysis to explain why things are as they are in the education system, what the hidden parts of the university's agenda are, and how this agenda prevents it from being that caring, learning establishment that we read about in the public relations material. The author uses physics as his main example in describing higher education as "an abusive intellectual bootcamp based on conformity." To give you an idea of this book's impact, the author's former employers, the publishers of *Physics Today* magazine, fired him when they read it.

Schmidt, who has a PhD in physics from the University of California, had been a feature article editor at the magazine for 19 years. To date, more than one thousand people in a wide variety of fields have protested his dismissal. Among the protestors are over 500 physicists, the largest number of physicists ever to speak out on a freedom-of-expression issue in North America. This interview with Schmidt was conducted on 3 December 2005. For more information about the book and his dismissal, see disciplinedminds.com.

Sean Kelly: How do you feel about your dismissal from *Physics Today*? What kind of outreach have you felt from the physics community and the broader community in response to this clearly political dismissal?

Jeff Schmidt: Physicists are protesting *Physics Today*'s action not only because it is repressive, but also because it implies that the institutions of physics are no less political than institutions in other fields. That implication upsets many physicists, who want to believe that physics is special, that it transcends politics. Those physicists may be naïve, but they are not cynical, and so they speak out and make a difference.

SK: In your experience, what fraction of physics professors are aware of the social and political role that they and the institution play?

JS: Professors are hired to produce ideology and people, through research and teaching, respec-

tively. Both activities are social and political, as you say. In research, many professors show "adjustable curiosity" as they conveniently get interested in areas in which the military-industrial-governmental complex makes funding available. Physics professors flock to solid-state physics, for example, even though it isn't inherently more interesting than, say, cosmology.

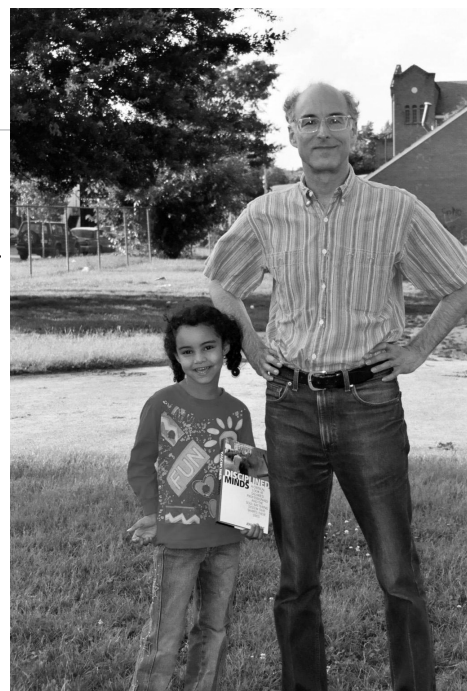
Teaching is often done in a way that alienates students from the subject they love. Pressure to assimilate large amounts of course material and to get good grades leads students to memorize rather than understand, to accept rather than question, to focus on assigned problems rather than self-assigned problems, to be subordinate rather than activists. This is perfect preparation for employment in hierarchical organizations.

Perhaps the strongest evidence that professors are aware of what they are doing is the fact that so few deviate from the social and political role they were hired to play – and the fact that any deviation is almost never accidental. Professors are like salaried professionals throughout society. The rare exceptions are inspiring – and a threat to the status quo. This school year, when University of Ottawa physics professor Denis Rancourt taught a physics course in a way that encouraged activism, he received enthusiastic student support – and two notices of disciplinary action from the university administration.

SK: Do you see any specific ways in which the media acts in this scheme of ideological discipline? I realize that the media is run by rich and powerful interests, and therefore serve those interests, but I am wondering if you, with your apparently keen eye for these things, have noted ways in which they participate directly in maintaining ideological discipline among professionals and non-professionals?

JS: Publications that salaried professionals read, such as the *New York Times*, make sure that every potentially disturbing fact is accompanied by an interpretation that takes the heat off of the system and implies that the reader can relax and stick with the assigned ideology rather than engage in independent thinking. Publications read by those who employ professionals, such as the *Wall Street Journal*, portray a scarier, whatever-you-can-get-away-with world.

SK: What do you perceive as the social/political role of the professional magazine *Physics Today*?



DARIA TAKHARU

Jeff Schmidt (right) with daughter Joshua Rose Schmidt holding his book, *Disciplined Minds*.

JS: It is a platform for the physics establishment to address rank-and-file physicists. Some of my coworkers and I pushed to make it a forum for all physicists. The view of the magazine bosses and most of the professional staff is that the magazine should present "The Truth." To determine what that is, the magazine sends submissions that it receives to various members of the physics establishment for review. A minority of the staff and I pushed to make the magazine a place where physicists could debate the issues. That would be a more interesting magazine.

Management was looking for an excuse to get rid of me, in part because I raised questions about the content of the magazine. One time, for example, I saw that the magazine was planning to say prominently, on the table-of-contents page, that the government's Los Alamos and Livermore laboratories "are renowned for the development of nuclear weapons." I objected in writing, pointing out that "renowned" means "celebrated," which isn't how most people in the world, even outside of Hiroshima and Nagasaki, view the developers of weapons of mass destruction. The staff editor who wrote that sentence had simply gone overboard in furthering the magazine's uncritical view of the system. But that phrasing turned out to be fine with management. They rejected my objection and printed the statement unchanged. It's in the October 1996 issue if you want to see it. The bosses are more comfortable without someone on their staff who raises questions like this.

SK: What do you think of us publishing this interview in the *CUPJ*?

JS: It's great that the *CUPJ* trusts its readers to handle a radical point of view. Not many media do.